

This PhD program is for **Self-Funded PhD Students Only**

International tuition fees for 2025-26 entry – 4.800 € per annum

Title: An investigation of antioxidant potential of edible and medicinal mushrooms and their application in medicine and food industry

Are you passionate about the research and application of edible/medicinal mushrooms in the pharmaceutical and food industries and their contribution to vitality and longevity?

This PhD project explores how mushrooms and their bioactive metabolites can be used to prevent oxidative stress in humans and animals. The World Health Organization (WHO) point out that aging is a consequence of the accumulation of molecular damage. The main processes contributing to this damage are reactions of free radical (FR) species and oxidative stress and an imbalance between pro-oxidant and antioxidant species, apart from reactions of metabolites and spontaneous errors in biochemical processes. Moreover, elderly people are susceptible to oxidative stress due to a decline in the efficiency of their endogenous antioxidant systems. Organs with high rates of oxygen consumption and limited respiration levels (the brain and heart) are the most susceptible to this phenomenon. In the pharmaceutical and nutraceutical industries, antioxidants are the current hype. They are intended as prophylactic and therapeutic agents commercialized as antiaging wonder compounds. Supplements for boosting internal antioxidant defenses are focused on enhancing nonenzymatic and enzymatic protection systems. Additionally, antioxidants may influence significant immunomodulatory mechanisms to bestow a better oxidant or antioxidant profile. The chemistry for mushrooms reveals numerous active compounds having the potential to support and enhance antioxidant defense. Healthy foods based on edible/medicinal mushrooms are one of the most active development areas in the functional food industry.

This research offers a unique opportunity to contribute to the development of innovative antioxidants from mushrooms for the prevention of oxidative stress and the contribution to vitality and longevity, making it a challenging PhD project for candidates pursuing an education in the field of food science and biochemistry. The PhD project would potentially provide possible proposals for stakeholders from an industrial or medical level.

Supervisors:

Supervisor 1: prof. Dr Maja Kozarski: e-mail: maja@agrif.bg.ac.rs

Supervisor 2: prof. Dr Anita Klaus: e-mail: aklaus@agrif.bg.ac.rs

Entry requirements: educational background (both bachelor's and master's degree) in food science, food technology, biochemistry, agronomy or similar. Applicants must meet the minimum English language requirements.

All potential applicants should send a CV highlighting educational background. In parallel, applicants may send a short research proposal (up to 3,000 words including references) to both supervisors. Upon selection of potential candidates, they will be contacted by the supervisors for an online interview, prior to selecting one PhD candidate.